

$$|\theta_{OA} - \theta_B| \leq 1^\circ$$

FIG.1

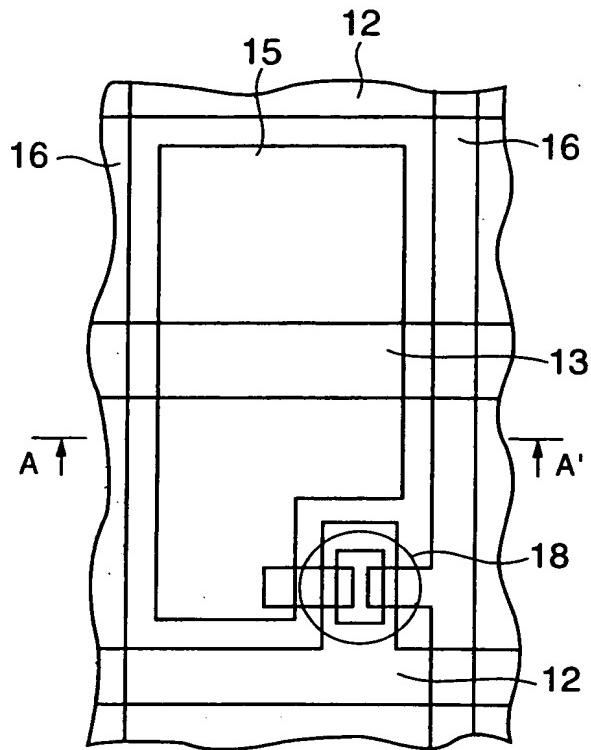
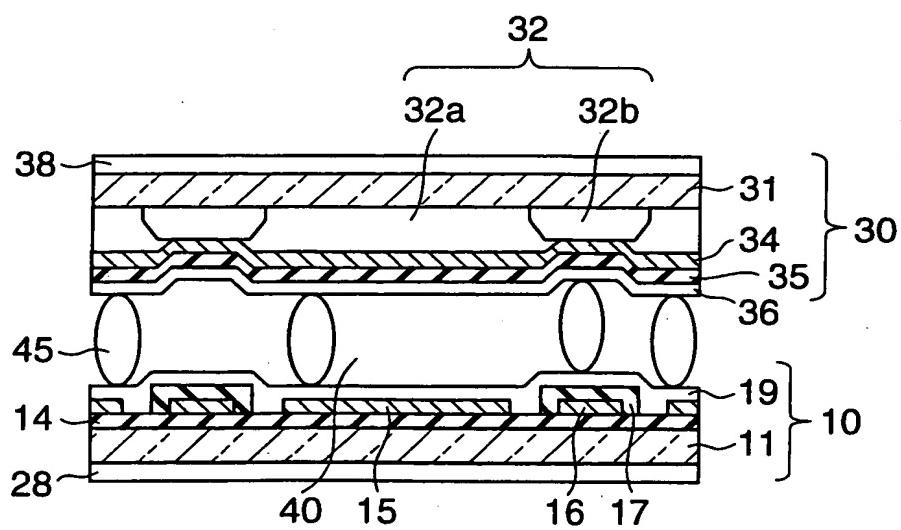


FIG.2A



CROSS SECTION TAKEN ALONG LINE A-A'

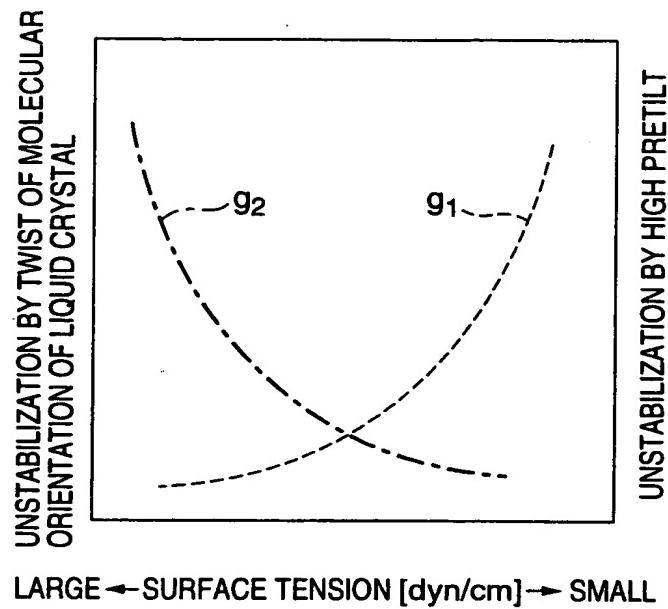
FIG.2B

ALIGNMENT LAYERS, CONTACT ANGLES, EXTENDING DIRECTIONS AND OPTICAL AXES OF BATONNET  
(ANGLES SHIFTED FROM RUBBING DIRECTION)

STRUCTURES OF PRINCIPAL CHAIN		(1)				(2)			
		A	A+B (2:1)	A+B (1:2)	B	C	D	D+E (2:1)	D+E (1:2)
ALIGNMENT LAYER MATERIAL	NONE	PRESENCE	PRESENCE	PRESENCE	NONE	PRESENCE	PRESENCE	PRESENCE	PRESENCE
SIDE CHAINS									
PRETILT ANGLES IN NEMATIC LIQUID CRYSTAL [°]	1-2				3	1-2	3-4		
CONTACT ANGLES [°]	(H <sub>2</sub> O)	30.0	30.4	31.3	31.2	25.4	26.3	27.0	28.7
	(CH <sub>2</sub> I <sub>2</sub> )	4.2	5.4	7.5	10.5	5.4	6.2	7.6	10.1
① SURFACE TENSION	[dyn/cm]	51.2	50.8	49.7	48.8	54.0	53.1	52.2	50.1
② EXTENDING DIRECTION [°] (OPTICAL AXIS [°]) OF BATONNET	a(Ps=210)	5(5)	(-)	(-)	7(7)	0(7)	8(8)	(-)	(-)
	b(160)	5(5)	(-)	(-)	5(5)	2(7)	5(7)	(-)	(-)
	c(30)	-3(-3)	(-)	(-)	-4(-4)	-4(-3)	-3(-4)	(-)	(-)
③ ALIGNMENT CHARACTERISTICS	a(Ps=210)	◎	-	-	○	△	○	-	-
	b(160)	◎	-	-	×	×	△	-	△
	c(30)	△	△	○	△	○	○	○	○
④ DETERIORATION RATIOS	c(30)	1.7	1.6	1.8	2.0	4.2	1.9	1.8	1.2
								1.5	-

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FIG.3



LARGE ← SURFACE TENSION [dyn/cm] → SMALL

FIG.4

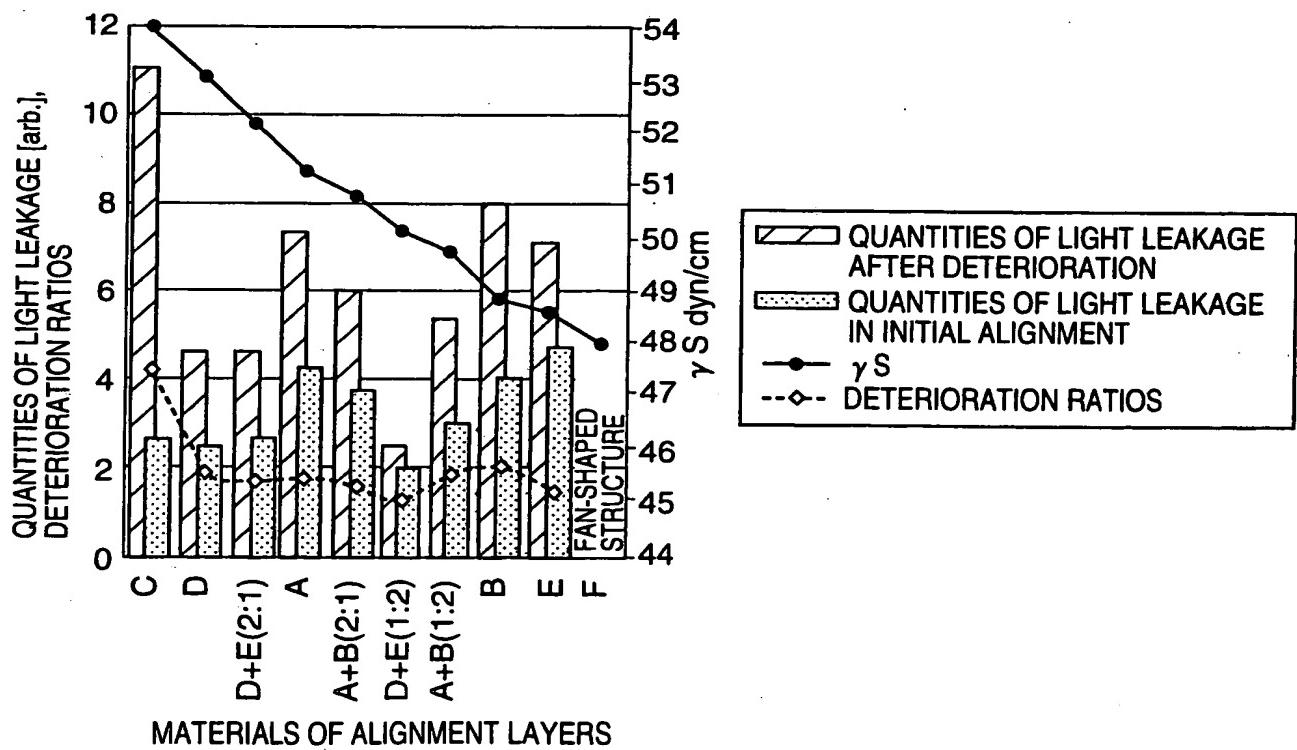


FIG.5

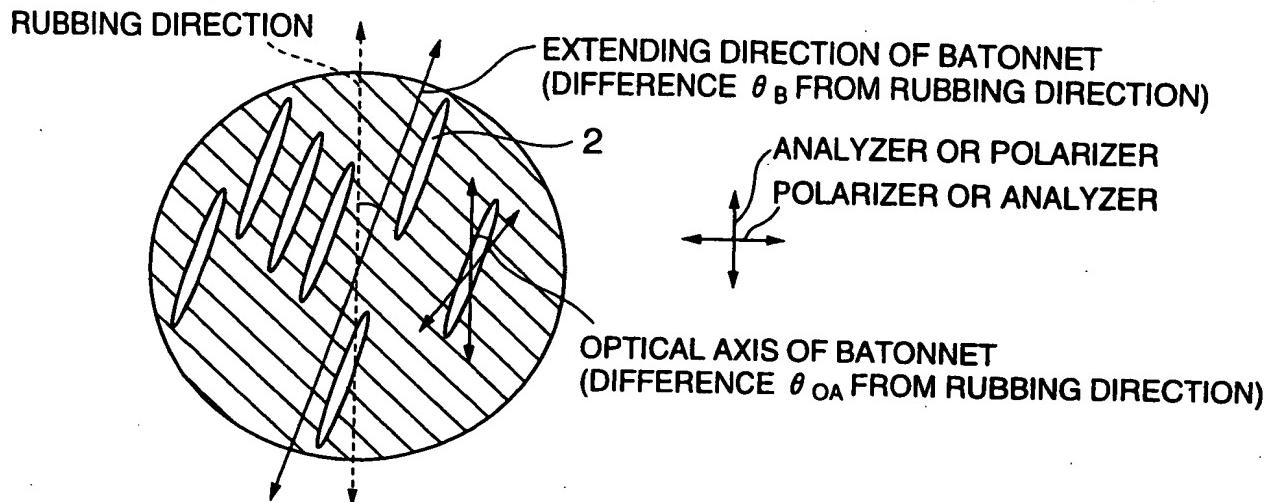


FIG.6

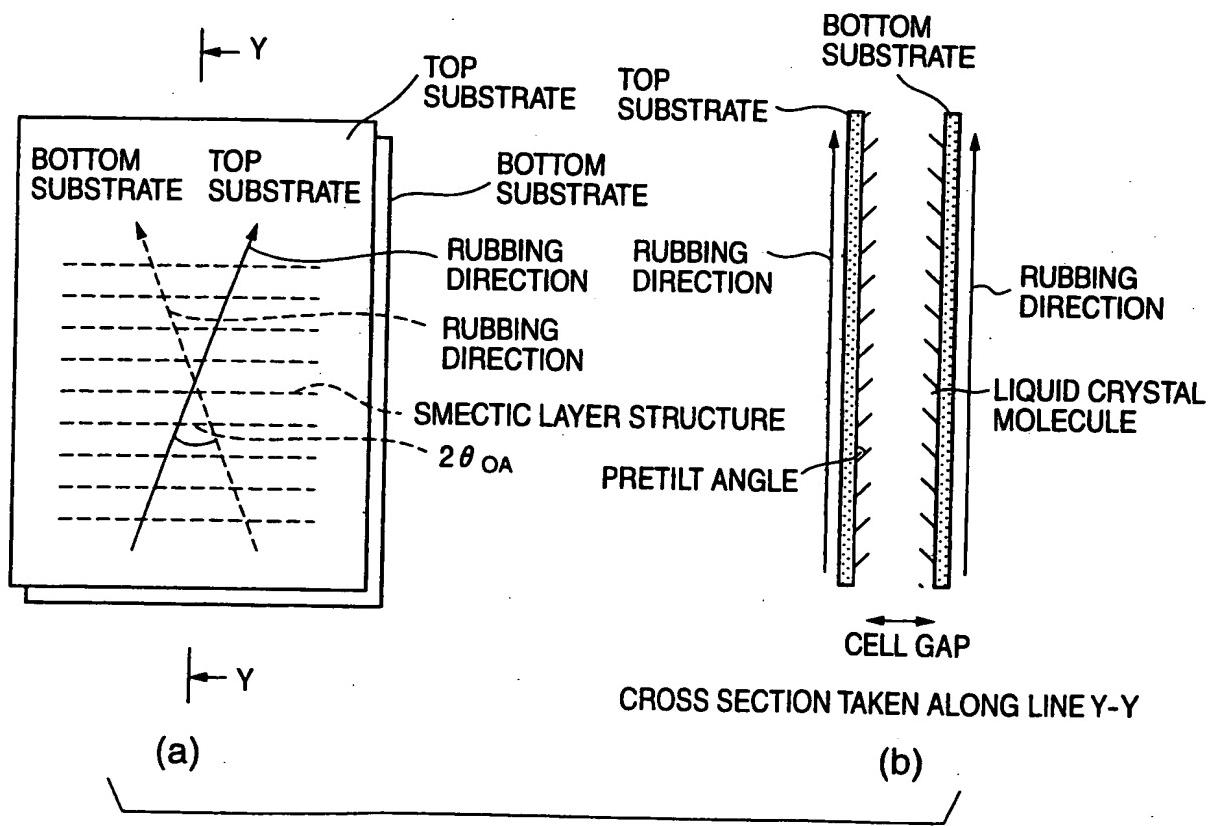


FIG.7

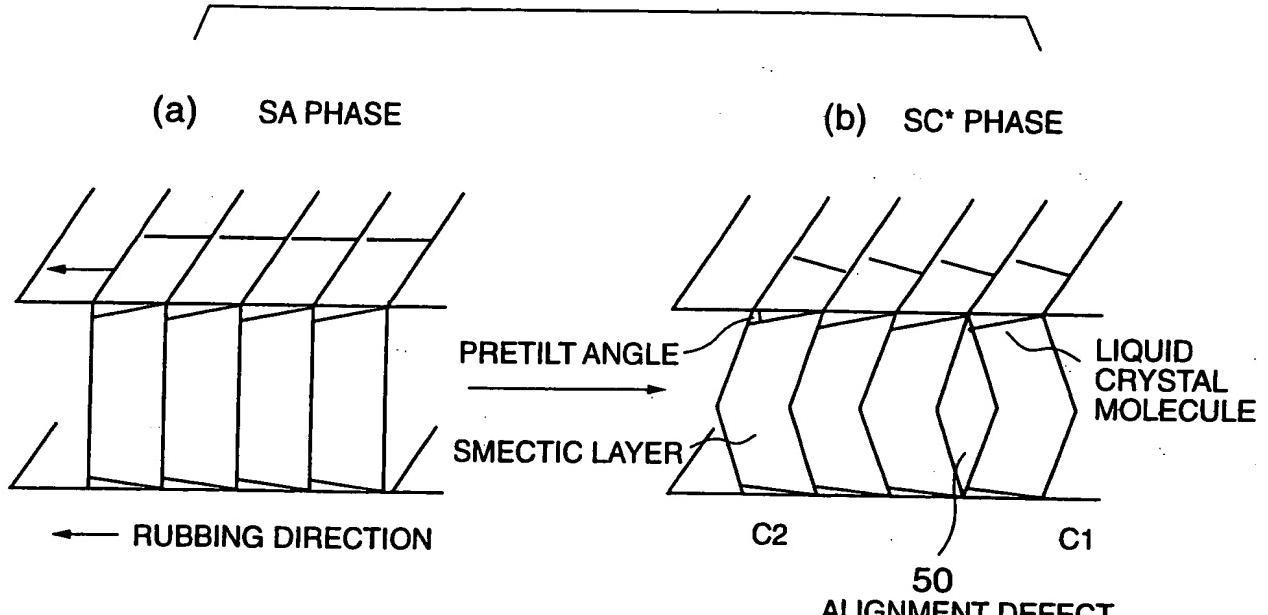
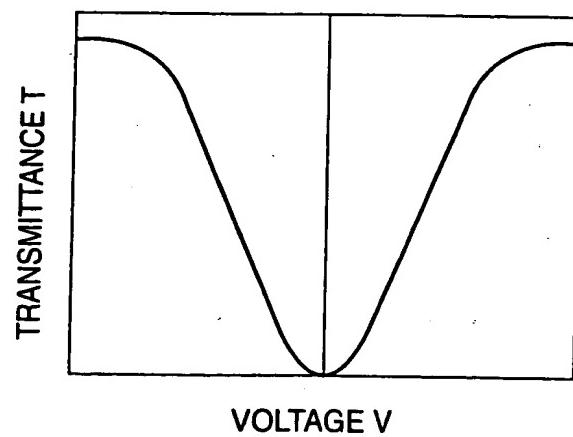
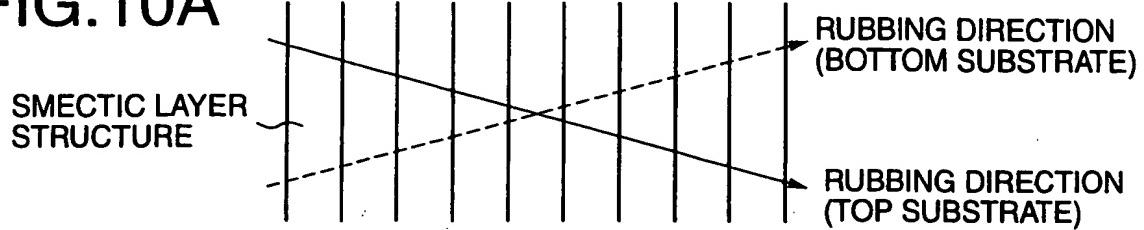
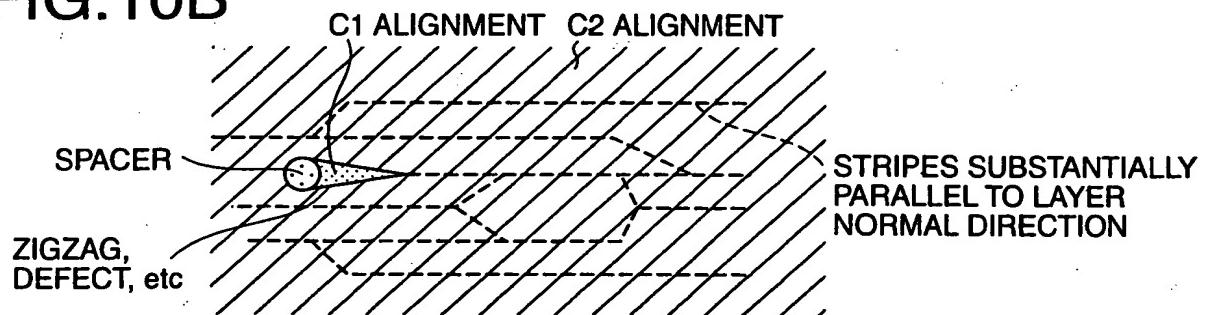
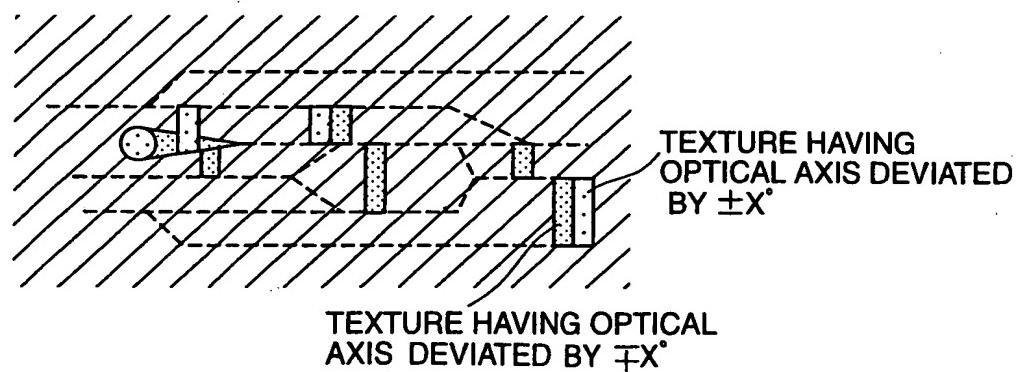


FIG.8



VOLTAGE V

FIG.9

**FIG.10A****FIG.10B****FIG.10C****FIG.10D**